

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A multi-layer substrate for a low noise block down converter, comprising:

an antenna pattern conveying an electric wave signal carried along a waveguide,

at least ~~a first and a second~~ two ground conductive layers stacked ~~on~~ below said antenna pattern with a dielectric layer therebetween,

wherein, in at least one of said at least two ~~first and second~~ ground conductive layers, a conductor is absent in at least part of a region that is closer to said waveguide than said antenna pattern is.

2. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 1, wherein, in at least one of said at least two ~~first and second~~ ground conductive layers, said conductor is absent in a region directly below said antenna pattern.

3. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 2, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same level as that in which one of ~~said~~ first and second ground

conductive layers from above among said three ground conductive layers is provided, ~~said a dielectric layer~~ is provided in a region that is closer to said waveguide than said antenna pattern is and, in the same level as that in which ~~said a~~ third ground conductive layer from among said three ground conductive layers is provided, a notch is provided in a region directly below said antenna pattern.

4. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 2, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same levels as those in which ~~said~~ first and second ground conductive layers from above among said three ground conductive layers are provided, ~~said a dielectric layer~~ is provided in a region that is closer to said waveguide than said antenna pattern is.

5. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 2, wherein a waveguide aperture is formed penetrating said at least two ~~first and second~~ ground conductive layers and said dielectric layer and, in all of the same levels as those in which said at least two ~~first and second~~ ground conductive layers are provided, said conductor is provided around said waveguide aperture.

6. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 5, having three

ground conductive layers as said at two ground conductive layers,
~~further comprising: wherein,~~

in a third ground conductive layer from above among said
three ground conductive layers, wherein, in said third ground
~~conductive layer,~~ a notch is provided in a region directly below
said antenna pattern.

7. (currently amended) The multi-layer substrate for the low
noise block down converter according to claim 5, having three
ground conductive layers as said at least two ground conductive
layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same
level as that in which one of ~~said~~ first and second ground
conductive layers from among said three ground conductive layers is
provided, ~~said a~~ dielectric layer is provided in at least part of
a region that is closer to said waveguide than said antenna pattern
is.

8. (currently amended) The multi-layer substrate for the
low noise block down converter according to claim 5, wherein, in at
least two of said at least two ~~first and second~~ ground conductive
layers, said conductor is absent in at least part of a region that
is closer to said waveguide than said antenna pattern is.

9. (currently amended) The multi-layer substrate for the low
noise block down converter according to claim 8, having three
ground conductive layers as said at least two ground conductive
layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same level as that in which ~~said~~ first ground conductive layer from above among said three ground conductive layers is provided, ~~said~~ a dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is and, in ~~said~~ a third ground conductive layer from above among said three ground conductive layers, a notch is provided in at least part of a region directly below said antenna pattern.

10. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 8, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same level as that in which one of ~~said~~ first and second ground conductive layers from above among said three ground conductive layers is provided, ~~said~~ a dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is and, in a ~~said~~ third ground conductive layer from above among said three ground conductive layers, a notch is provided in a region directly below said antenna pattern.

11. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 8, wherein, in at least two of said at least two ~~first and second~~ ground conductive layers, said conductor is absent in a region directly below said antenna pattern.

12. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 11, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same level as that in which one of ~~said~~ first and second ground conductive layers from above among said three ground conductive layers is provided, a ~~said~~ dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is and, in a ~~said~~ third ground conductive layer from above among said three ground conductive layers, a notch is provided in a region directly below said antenna pattern.

13. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 11, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same levels as those in which ~~said~~ first and second ground conductive layers from above among said three ground conductive layers are provided, a ~~said~~ dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is.

14. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 1, wherein a waveguide aperture is formed penetrating said at least two ~~first and second~~ ground conductive layers and said dielectric layer and, in all of the same levels as those in which said at least two ~~first~~

~~and second~~ ground conductive layers are provided, said conductor is provided surrounding an entire periphery of said waveguide aperture.

15. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 14, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same level as that in which one of ~~said~~ first and second ground conductive layers from above among said ground conductive layers is provided, a said dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is and, in ~~said~~ a third ground conductive layer from above among said three ground conductive layers, a notch is provided in at least part of a region directly below said antenna pattern.

16. (currently amended) The multi-layer substrate for the low noise block down converter according to claim 14, having three ground conductive layers as said at least two ground conductive layers, further comprising:

~~a third ground conductive layer,~~ wherein, in the same levels as those in which ~~said~~ first and second ground conductive layers from above among said three ground conductive layers are provided, a said dielectric layer is provided in at least part of a region that is closer to said waveguide than said antenna pattern is.